

for July in the last sixteen years, 78°, occurred during the present month, and the lowest mean temperature, 70°, in 1884; the highest maximum temperature for the same period, 98°, occurred also during the present month, and the lowest minimum temperature, 51°, in 1884.

New York.—Harford Co.: during a period of thirteen years the highest mean temperature for July, 79°, occurred in 1872; the lowest mean temperature, 71°, in 1884.

Massachusetts.—Westborough, Worcester Co.: the mean temperature for the present month, 77°, is the highest July mean temperature, with one exception, viz., 79°, in 1876, that has occurred during the last twenty-one years.

New York.—Palermo, Oswego, Co.: during the last thirty-four years the highest mean temperature for July, 79°, occurred in 1868, and the lowest mean temperature, 63°, in 1860 and 1884.

Ohio.—Cleveland, Cuyahoga Co.: the mean temperature of the present month, 76°, has been exceeded but once, viz., 77°, in 1868, during the last thirty-three years.

North Lewisburg, Champaign Co.: since 1831 the maximum temperature has not been above 100° until the present summer; the maximum temperature for July, 1887, 102°, occurred on the 17th.

Wauseon, Fulton Co.: during the last seventeen years the highest mean temperature for July, 77°, occurred during the present month; the lowest mean temperature, 68°, in 1882; the July extreme temperatures for the same period are: 104° in 1874 and 43° in 1871.

Pennsylvania.—Dyberry, Wayne Co.: during the last twenty years, the highest mean temperature for July, 74°, occurred in 1868; the lowest mean temperature, 61°, in 1884.

Texas.—New Ulm, Austin Co.: during the last sixteen years the highest maximum temperature for July, 104°, occurred in 1886; the lowest minimum temperature, 64°, in 1877.

Vermont.—Strafford, Orange Co.: during a period of sixteen years the highest mean temperature for July, 74°, occurred during the present month; the lowest mean temperature, 67°, in 1881.

Virginia.—Brunington, King and Queen Co.: the maximum temperature for the month, 98°, is about 4° higher than the maximum of the last seven years.

Variety Mills, Nelson Co.: the mean temperature for July, 1887, 78°, is the highest, with one exception, viz., 80° in 1878, that has occurred during the last ten years; the lowest mean temperature, 72°, occurred in 1882; the maximum temperature for the month, 101°, is the highest recorded since August, 1881.

Table of comparative maximum and minimum temperatures for July.

State or Territory.	Station.	For 1887.		Since establishment of station.				Length of record.
		Max.	Min.	Max.	Year.	Min.	Year.	
Alabama	Mobile	97.5	68.0	101.0	1883	63.8	1882	16
Do	Montgomery	100.4	70.4	106.9	1881	60.8	1882	14
Arizona	Yuma	114.0	66.1	118.0	1878	61.0	1879	11
Do	Fort Grant	98.5	57.4	100.9	1884	56.0	1880	8
Arkansas	Fort Smith	103.8	65.0	104.5	1884	61.0	1882	5
Do	Little Rock	100.0	64.2	101.3	1884	61.0	1882	8
California	Los Angeles	98.1	51.1	99.0	1884	50.4	1886	9
Do	San Francisco	69.9	49.0	83.0	1881, 1884	42.0	1874, 1881	16
Colorado	Denver	92.1	50.0	102.3	1874	49.0	1876	15
Do	Pike's Peak	54.8	28.6	64.0	1879	18.0	1870	13
Connecticut	New Haven	90.2	60.2	95.0	1876	50.3	1885	14
Dakota	Blamack	95.6	50.3	102.0	1881	32.0	1884	12
Do	Deadwood	89.8	50.3	102.0	1881	42.0	1883	8
Dist. of Columbia	Washington City	102.8	64.5	102.0	1879	54.1	1885	16
Florida	Cedar Keys	92.1	68.9	94.0	1880, 1881	68.0	1886	7
Do	Pensacola	98.6	71.3	97.2	1884	64.2	1882	7
Georgia	Augusta	103.8	68.8	105.0	1878	61.7	1885	14
Idaho	Boise City	100.3	40.9	106.9	1886	40.0	1883	10
Illinois	Cairo	97.5	66.2	99.0	1874, 1881	60.0	1883	15
Do	Chicago	99.8	61.0	99.0	1874	50.0	1873	15
Indiana	Indianapolis	100.8	58.6	101.0	1881	47.5	1885	13
Indian Ter.	Fort Sill	105.2	66.2	107.0	1884	56.0	1877, 1880	10
Iowa	Dubuque	100.6	54.6	101.0	1874	50.4	1882	14
Do	Des Moines	101.7	52.0	104.4	1886	52.0	1882	8
Kansas	Dodge City	99.4	58.2	108.0	1876	50.0	1877	12
Do	Leavenworth	101.7	57.3	104.0	1874	33.5	1882	16
Kentucky	Louisville	101.7	65.1	102.0	1874	54.0	1885	14
Louisiana	New Orleans	95.8	70.0	96.0	1877	69.8	1882	16
Do	Shreveport	103.8	69.0	107.0	1875	64.0	1877, 1880	14
Maine	Eastport	83.8	49.0	87.4	1886	45.0	1884	14
Do	Portland	95.8	56.7	97.0	1876	48.5	1886	15
Maryland	Baltimore	101.8	66.8	99.0	'76, '79, '80	56.0	1885	14
Massachusetts	Boston	95.1	60.7	101.0	1880	46.0	1874	16
Michigan	Marquette	97.0	46.2	100.0	1878	38.0	1886	13
Do	Grand Haven	89.7	52.0	90.0	1878	40.0	1873	14
Minnesota	Saint Vincent	88.6	38.1	94.9	1886	39.2	1885	6
Do	Saint Paul	93.9	51.3	100.0	1883	46.0	1873	14
Mississippi	Vicksburg	95.3	68.4	100.0	1878	62.0	1881	14

Table of comparative maximum and minimum temperatures—Continued.

State or Territory.	Station.	For 1887.		Since establishment of station.				Length of record.
		Max.	Min.	Max.	Year.	Min.	Year.	
Missouri	Saint Louis	100.0	68.0	104.0	1881	57.0	1876	16
Montana	Fort Assinabois	93.1	42.9	108.4	1886	35.0	1881	6
Do	Helena	91.5	43.5	103.1	1886	38.0	1880	7
Nebraska	North Platte	99.4	53.8	107.0	1877	45.0	1877, 1882	12
Do	Omaha	103.3	55.1	105.0	1874	51.0	1873	14
Nevada	Winnemucca	95.2	44.3	104.0	1877	37.0	1877, 1878	8
New Hampshire	Mt. Washington	66.0	30.4	72.0	1881	27.0	1883	15
New Jersey	Atlantic City	97.0	65.0	99.0	1880	53.0	1880	13
New Mexico	Santa Fe	86.8	51.0	95.5	1878	46.0	1872, 1880	14
New York	Buffalo	92.1	60.2	90.0	1878	47.5	1876	14
Do	New York City	94.0	65.8	99.0	1876	56.2	1885	16
North Carolina	Charlotte	102.2	65.6	101.0	1879	56.1	1885	8
Do	Wilmington	100.0	65.5	103.0	1879	62.0	1881	16
Ohio	Cincinnati	101.2	63.1	103.5	1881	53.0	1885	16
Do	Sandusky	98.0	62.9	96.0	1879	53.1	1885	9
Oregon	Portland	93.0	45.7	99.0	1885	46.0	1875, 1880	14
Do	Roseburg	93.1	39.6	100.8	1885	40.0	1879	10
Pennsylvania	Pittsburg	101.1	59.6	102.7	1881	50.0	1885	14
Do	Philadelphia	99.9	67.8	100.0	1876	56.0	1883	16
Rhode Island	Block Island	83.4	59.2	87.8	1885	55.0	1883	6
South Carolina	Charleston	97.9	69.8	104.0	1879	64.7	1886	14
Tennessee	Knoxville	100.2	65.2	100.0	1879	52.2	1885	16
Do	Memphis	99.0	67.3	99.0	1875, 1881	60.0	1882	14
Texas	Brownsville	91.6	65.1	98.0	1877, 1883	68.0	1877	11
Do	Fort Elliott	98.7	59.6	102.0	1881	49.0	1880	7
Utah	Salt Lake City	97.9	54.1	99.7	1885	45.0	1880	13
Virginia	Lynchburg	101.8	61.5	101.8	1881	54.4	1885	14
Do	Norfolk	102.5	65.3	102.5	1876	59.4	1885	16
Washington Ter.	Spokane Falls	94.2	41.4	100.3	1886	42.8	1884	6
Do	Olympia	86.2	39.8	97.0	1885	40.0	1882	8
Wisconsin	La Crosse	98.4	48.7	101.0	1874	52.0	1883	14
Do	Milwaukee	99.9	52.2	97.5	1886	49.7	1886	16
Wyoming	Cheyenne	89.5	46.0	100.5	1881	37.6	1882	14

FROSTS.

Saint Vincent, Minn.: the fall of temperature during the night of the 21st-22d caused general fears as to frost, but none occurred on this (the east) side of Red River; on the Dakota side of the river, however, light frosts were noticed in the vicinity of Batbgate and Hamilton, Pembina Co.; no damage was done to the staple crops, but cabbage, beets, onions, and potatoes were nipped. The minimum temperature at this station on the morning of the 22d was 38°.

Frosts are also reported to have occurred as follows:

Illinois.—Sycamore, 24th. **Michigan.**—Swartz Creek and Mackinaw City, 23d. **Nevada.**—Carson City, 14th, 22d. **Oregon.**—East Portland, 10th to 14th; Fort Klamath, 11th to 15th, 24th, 25th.

TEMPERATURE OF WATER.

The following table shows the maximum, minimum, and mean water temperature, as observed at the harbors of the several stations; the monthly range of water temperature; the average depth at which the observations were made, and the mean temperature of the air:

Temperature of water for July, 1887.

Station	Temperature at bottom.				Mean temperature of the air at station.	Average depth of water, feet and tenths.
	Max.	Min.	Range.	Monthly mean.		
Canby, Fort, Wash.	64.3	61.1	3.2	63.0	55.0	13.6
Cedar Keys, Fla.	85.4	80.1	5.3	83.1	82.6	8.9
Charleston, S. C.	87.0	79.4	11.6	83.0	81.7	36.9
Eastport, Me.	51.0	46.4	4.6	48.6	60.9	16.7
Galveston, Tex.	89.2	83.0	6.2	86.1	82.9	
Key West, Fla.	90.4	84.4	6.0	87.8	82.7	21.6
New London, Conn.	70.8	64.7	6.1	67.1	73.2	12.5
New York City	80.3	70.9	9.4	75.6	76.7	
Pensacola, Fla.	88.3	77.3	11.0	83.3	81.8	18.4
Portland, Me.	65.0	54.4	10.6	59.3	70.1	17.5

* Record for twenty-six days.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for July, 1887, as determined from the reports of about eight hundred stations, is exhibited on chart iii. In the table of miscellaneous meteorological data are given, for each

Signal Service station, the total precipitation, with the departures from the normal. The figures opposite the names of the geographical districts in columns for mean temperature, precipitation, and departures from the normal, show respect-

ively the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal, and subtracting when above.

The rainfall for July, 1887, is excessive in the states bordering on the Atlantic and east Gulf coasts; also over an area extending from Minnesota and Dakota southwestward to the Pacific coast, and over portions of Texas, Montana, and Idaho. In the east Gulf states the average precipitation is 7.32, which is 2.30 more than the normal precipitation for that district; this large excess is due to the very heavy rains which fell in South Carolina, Georgia, and northern Florida, there being a deficiency in portions of Alabama and Mississippi. In the middle Atlantic states and New England the rainfall is about one inch more than the average amount for the month.

In the Lake region, central valleys, and in the northern and central Pacific coast regions, the rainfall is below the average. In the states of Missouri, Kansas, Iowa, Illinois, Michigan, Indiana, Ohio, and Kentucky, where drought prevailed during preceding months, the rainfall for July is below the average, the deficiency being greatest in the lower lake region, where less than one-half of the average amount of rain fell; a marked deficiency also occurs in the upper Mississippi valley, where the rainfall is but little more than half of the average.

The following are some of the most marked departures from the normal precipitation at Signal Service stations where the meteorological records cover ten, or more, years of observations:

Above normal.		Below normal.	
	Inches.		Inches.
Atlanta, Ga.	10.90	Springfield, Ill.	3.90
Pittsburg, Pa.	4.80	Omaha, Neb.	3.81
Montgomery, Ala.	4.65	Leavenworth, Kans.	3.66
Augusta, Ga.	4.26	La Crosse, Wis.	3.27
Baltimore, Md.	3.76	Sandusky, Ohio.	3.23
Philadelphia, Pa.	2.92	Cleveland, Ohio.	3.20
Jacksonville, Fla.	2.88	San Antonio, Tex.	2.76
New York City	2.37	Dubuque, Iowa.	2.62

DEVIATIONS FROM AVERAGE PRECIPITATION.

The following table shows, for certain stations, as reported by voluntary observers, the average precipitation for the month of July for a series of years, the precipitation for July, 1887, and the departures from the average:

Station.	County.	Average precipitation for July.	Number of years.	Precipitation for July, 1887.	Departure.
		Inches.		Inches.	Inches.
Arkansas.					
Lead Hill	Boone	7.85	5	1.82	- 6.03
California.					
Sacramento	Sacramento	0.01	21	0.00	- 0.01
Connecticut.					
Canton	Hartford	4.59	26	7.40	+ 2.81
Hartford	Hartford	4.44	16	3.20	- 1.24
Middletown	Middlesex	4.18	29	6.99	+ 2.81
Wallingford	New Haven	4.07	30	4.53	+ 0.46
Dakota.					
Webster	Day	6.30	5	4.73	- 1.57
Florida.					
Archer	Alachua	9.04	5	9.72	+ 0.68
Illinois.					
Collinsville	Madison	1.44	5	1.77	+ 0.33
Mattoon	Coles	2.89	7	1.30	- 1.59
Peoria	Peoria	3.90	32	2.85	- 1.05
Riley	McHenry	3.84	26	2.70	- 1.14
Rockford	Winnebago	4.07	14	3.12	- 0.95
Sycamore	De Kalb	4.93	7	3.12	- 1.81
Indiana.					
Blue Lick	Clark	2.84	6	1.00	- 1.84
Connersville	Fayette	2.66	8	2.05	- 0.61
Lafayette	Tippecanoe	3.21	8	0.85	- 2.36
Logansport	Cass	3.90	33	2.65	- 1.25
Mauzy	Rush	2.35	8	0.69	- 1.66
Sunman	Ripley	2.44	4	2.03	- 0.41
Vevay	Switzerland	3.93	21	2.21	- 1.72
Worthington	Greene	4.00	5	2.30	- 1.70
Iowa.					
Creco	Howard	4.62	15	3.11	- 1.51
Monticello	Jones	4.25	34	4.45	+ 0.20
Kansas.					
Independence	Montgomery	4.14	15	3.21	- 0.93
Lawrence	Douglas	4.37	19	2.14	- 2.23
Wellington	Sumner	4.14	9	3.45	- 0.69

Deviations from average precipitation—Continued.

Station.	County.	Average precipitation for July.	Number of years.	Precipitation for July, 1887.	Departure.
		Inches.		Inches.	Inches.
Maine.					
Cornish	York	4.45	30	5.85	+ 1.40
Gardiner	Kennebec	3.82	49	6.97	+ 3.15
Orono	Penobscot	3.43	19	7.11	+ 3.68
Maryland.					
Cumberland	Alleghany	3.66	16	5.59	+ 1.93
Fallston	Harford	4.44	16	5.39	+ 0.95
New Midway	Frederick	3.66	6	6.21	+ 2.55
Massachusetts.					
Amherst	Hampshire	4.48	52	10.50	+ 6.02
Cambridge	Middlesex	3.47	46	4.18	+ 0.71
Chestnut Hill	Middlesex	3.60	12	3.69	+ 0.09
Framingham	Middlesex	3.41	13	3.81	+ 0.40
Lake Cochituate	Middlesex	4.25	36	3.67	- 0.58
Ludlow	Hampden	4.27	12	5.67	+ 1.40
Lynn	Essex	3.56	13	5.89	+ 2.33
Mystic Lake	Middlesex	4.02	12	6.43	+ 2.41
New Bedford	Bristol	3.34	71	3.61	+ 0.27
Somerset	Bristol	3.74	17	4.15	+ 0.41
Springfield	Hampden	4.38	40	6.61	+ 2.23
Taunton	Bristol	3.02	4	6.25	+ 3.23
Waltham	Middlesex	3.74	63	4.58	+ 0.84
Nevada.					
Carson City	Ormsby	0.27	8	0.23	- 0.04
New Brunswick.					
Saint John	Saint John	4.01	27	5.60	+ 1.59
New Hampshire.					
Concord	Merrimac	3.90	32	7.84	+ 3.94
New Jersey.					
Dover	Morris	4.33	5	10.02	+ 5.69
South Orange	Essex	4.66	17	9.38	+ 4.72
New York.					
Factoryville	Tioga	4.34	6	7.19	+ 2.85
Palermo	Oswego	3.20	34	2.65	- 0.55
North Carolina.					
Raleigh	Wake	3.20	4	9.10	+ 5.90
Ohio.					
North Lewisburg	Champaign	4.65	15	2.20	- 2.45
Wauseon	Fulton	4.05	15	2.87	- 1.18
Pennsylvania.					
Dyberry	Wayne	5.00	16	9.28	+ 4.28
Rhode Island.					
Providence	Providence	3.46	56	6.09	+ 2.63
South Carolina.					
Kirkwood	Kershaw	4.63	20	4.13	- 0.50
Stateburg	Sumter	3.58	7	4.90	+ 1.32
Texas.					
New Ulm	Austin	4.23	16	2.76	- 1.47
Vermont.					
Lunenburg	Essex	3.98	38	4.88	+ 0.90
Newport	Orleans	4.46	13	6.15	+ 1.69
Stratford	Orange	4.37	13	5.60	+ 1.23
Virginia.					
Bird's Nest	Northampton	4.59	19	5.60	+ 1.01
Dale Enterprise	Rockingham	3.74	7	7.05	+ 3.31
Variety Mills	Nelson	3.36	8	5.15	+ 1.79
Wytheville	Wythe	4.11	23	5.58	+ 1.47
West Virginia.					
Helvetia	Randolph	7.04	10	2.86	- 4.18

* From the "Bulletin of the New England Meteorological Society."

The following notes on precipitation are furnished by voluntary observers:

Arkansas.—Lead Hill, Boone, Co.: during the last five years the greatest precipitation for July, 11.60, occurred in 1888; the least, 1.82, was recorded during the present month.

Indiana.—Vevay, Switzerland Co.: the largest July precipitation during the last twenty-one years, 9.80, occurred in 1874; the least, 0.90, in 1869.

Iowa.—Monticello, Jones Co.: the greatest precipitation for July during the last thirty-four years, 10.98, occurred in 1883; the least, 0.60, in 1874.

Kansas.—Independence, Montgomery Co.: during the past fifteen years the greatest precipitation in July, 10.22, occurred in 1875, and the least, 0.39, in 1874; the total precipitation for the seven months ending July 31st, 18.82, is 4.95 less than the average of the same months in the above-mentioned period.

Lawrence, Douglas Co.: the total precipitation for the seven months ending July 31st, 15.92, is 5.15 below the average for the same months in the nineteen preceding years.

Maryland.—Cumberland, Alleghany Co.: in the last sixteen years the greatest precipitation for July, 5.59, occurred during the present month; the least, 1.01, in 1885.

Fallston, Harford Co.: the greatest precipitation for July during the last sixteen years, 10.03, occurred in 1886; the least, 1.42, in 1881.

Massachusetts.—Amherst, Hampshire Co.: the total precipitation for the month, 8.93, is the largest during any month of July since 1889, when it was 9.56; in 1863 it was 8.63, the next highest amount.

Ohio.—Wauseon, Fulton Co.: during the last fifteen years the greatest precipitation for July, 7.26, occurred in 1872; the least, 0.31, in 1886.

New York.—Palermo, Oswego Co.: the greatest precipitation for July during the last thirty-four years, 6.60, occurred in 1874; the least, 0.64, in 1882.

Pennsylvania.—Dyberry, Wayne Co.: the total precipitation for July, 1887, 9.28, is the largest amount recorded for any month during the last twenty years; the least precipitation for July in that time, 1.70, occurred in 1885.

South Carolina.—Stateburg, Sumter Co.: the greatest precipitation for July during the past seven years, 5.67, occurred in 1886; the least, 1.70, in 1884.

Texas.—New Uim, Austin Co.: during the last sixteen years the greatest July precipitation, 14.38, occurred in 1873; no rain fell in July, 1884.

Vermont.—Strafford, Orange Co.: the largest July precipitation during the last thirteen years, 6.10, occurred in 1880; the least, 2.00, in 1881.

Virginia.—Variety Mills, Nelson Co.: during the last eight years the greatest July precipitation, 5.15, occurred during the present month; the least, 1.68, in 1888.

Table of excessive and greatest monthly precipitation for July, 1887.

Station.	Specially heavy.		Largest monthly.	Station.	Specially heavy.		Largest monthly.
	Date.	Amt.			Date.	Amt.	
<i>Alabama.</i>				<i>Louisiana—Con.</i>			
Opelika.....	20	2.96	20.18	Natchitoches.....			7.11
Do.....	23, 24	2.88		Grand Coteau.....			6.63
Do.....	27, 28	11.20		<i>Maine.</i>			
Greenville.....	23	3.44	10.53	Orono.....	22 to 25	4.38	7.11
Do.....	27, 28	2.07		Gardiner.....	23, 24	5.11	6.96
Eufaula.....	27	2.65	9.15	Mayfield.....			6.53
Fort Deposit.....	27 to 31	6.19	9.11	Cornish.....	23, 24	3.08	
Montgomery.....	27, 28	2.46	8.56	<i>Maryland.</i>			
Evergreen.....	6, 7	2.33	6.81	Baltimore.....	21	2.76	8.32
Mount Vernon.....	5	2.40	6.01	Fort McHenry.....			6.26
<i>Arizona.</i>				New Midway.....	23, 24	2.02	6.21
Fort Grant.....			9.00	Cumberland.....	23	3.00	
Tucson.....	7 to 9	2.91		Fallston.....	5	2.19	
<i>Arkansas.</i>				<i>Massachusetts.</i>			
Forrest City.....	7	2.00	8.70	Boyd's Corners.....			13.55
Do.....	20, 21	4.50		Williamstown.....	23, 24	5.76	10.82
Hot Springs.....	5, 6	2.50		Deerfield.....	23, 24	6.41	10.66
Helena.....	8	2.50		Amherst a.....			10.50
Pine Bluff.....	20, 21	2.30		Dudley.....	17, 18	3.62	10.49
<i>Colorado.</i>				Do.....	23, 24	3.40	
Fort Lewis.....	9, 10	2.28	7.54	Amherst b.....	23, 24	5.79	8.93
Do.....	13, 14	2.64		Northampton.....			8.91
Pike's Peak.....			6.52	Chicopee.....			8.24
<i>Connecticut.</i>				Princeton.....			7.27
Canton.....			7.40	Fitchburg a.....			7.23
Middletown.....			6.99	Fitchburg b.....			6.61
North Colebrook.....	23, 24	5.05	6.65	Springfield.....			6.43
Voluntown.....	17	2.10		Mystic Lake.....			6.29
New Haven.....	21, 22	2.16		Monson.....			6.27
<i>Dakota.</i>				Taunton b.....			6.25
Parkston.....	1, 2	2.39		Taunton c.....			6.20
Henry.....	2, 3	2.48		Groton.....			6.09
Fort Sisseton.....	1, 2	2.26		Gilbertville.....			6.06
<i>Florida.</i>				Rowe.....			6.05
Limona.....	29, 30	8.64	12.50	<i>Minnesota.</i>			
Tallahassee.....	6, 7	2.70	12.45	Moorhead.....			6.40
Do.....	27	2.35		<i>Mississippi.</i>			
Do.....	30, 31	2.09		Hermanville.....			8.29
Manatee.....	1	2.96	10.15	Natchez.....	6 to 8	4.39	8.03
Do.....	30, 31	3.39		Edwards.....	1, 2	2.79	6.83
Archer.....	5, 6	2.91	9.72	Macon.....	2, 3	2.42	6.57
Do.....	29 to 31	3.85		Waynesborough.....			6.39
Cedar Keys*.....	25, 26	4.90		Brookhaven.....	4, 5	2.00	6.18
Jacksonville.....	29	2.88	8.49	<i>Missouri.</i>			
Live Oak.....			7.80	Lamar.....			7.10
Fort Meade.....	30	2.99	6.75	<i>New Hampshire.</i>			
<i>Georgia.</i>				New Washington.....	11	2.78	15.16
Union Point.....	28 to 30	16.50	18.13	Manchester a.....			9.54
Milledgeville.....	5, 6	3.28	16.09	Nashua.....	23, 24	5.49	7.85
Do.....	10, 11	2.06		Concord a.....			7.84
Do.....	28 to 31	9.58		Concord b.....	23, 24	4.65	7.52
Washington.....	28 to 30	11.91	15.95	Berlin Mills.....			7.28
Athens a.....	28 to 31	12.63	15.93	Grafton.....			7.18
Newnan.....	28 to 31	9.83	14.47	West Milan.....	23, 24	5.17	7.14
Athens b.....	27 to 31	10.78	14.44	Lake Village.....	22 to 24	4.03	6.83
Griffin.....	28 to 31	9.20	14.41	Woodstock.....	22 to 25	3.12	6.70
Atlanta.....	28 to 30	8.09	13.46	Antrim.....	21 to 24	3.71	6.10
Camak.....	28 to 30	8.83	13.01	Wolfeborough.....	24	3.58	6.09
Smithville.....	4 to 6	3.79	12.71	Bristol.....	24	2.67	6.08
Do.....	27 to 31	6.39		Walpole.....			6.05
Millen.....	5	2.20		Wier's Bridge.....	22 to 24	3.15	
Do.....	23, 24	3.40		<i>New Jersey.</i>			
Do.....	29 to 31	3.67		Hightstown.....	23	4.03	15.29
Forsyth.....	27 to 31	9.15	12.70	Mattawan.....	22	5.40	14.00
Columbus.....	27 to 28	5.80	12.59	Dover.....	5, 6	3.74	10.02
Do.....	30, 31	2.15		Do.....	23, 24	3.77	
West Point.....	27, 28	6.55	12.26	Rancocas.....	23	2.59	9.90
Do.....	30	2.65		Somerville.....	23	3.01	9.83
Toccoa.....	28 to 31	5.27	11.66	Paterson.....	23	4.86	9.83
Cartersville.....	28 to 31	4.39	10.54	Beverly.....	27	2.46	9.48
Bainbridge.....	27	4.20	10.43	South Orange.....	21 to 23	6.10	9.38
Do.....	31	2.10		Gillette.....	25	4.27	9.31
Quitman.....	27, 28	2.25	9.84	Union.....	24	2.56	9.29
Alapaha.....	4 to 6	3.54	9.69	Roseland.....	23	3.35	9.17
Eastman.....	5, 6	3.07	9.27	Locktown.....			8.86
Do.....	28, 29	3.00		Lambertville.....			7.92
Thomasville.....	26, 27	3.62	9.27	Bordentown.....	24	2.52	7.90
Do.....	31	2.78		Elizabeth.....	22	2.45	7.71
Waynesborough.....	21	2.46	8.87	Newark.....			7.05
Do.....	29, 30	2.28		Oceanic.....	26	2.52	6.95
Augusta.....	29	4.58	8.83	Inlaystown.....			6.81
Jessup.....	5, 6	2.35	7.74	New Brunswick.....			6.20
Do.....	29	2.10		Moorstown.....			6.59
Galineville.....	26	3.10	7.28	Hopewell.....			6.05
Fort Gaines.....	27	2.80	6.90	<i>New York.</i>			
Macon.....	28 to 30	3.07	6.41	Fort Columbus.....	23, 24	2.94	8.36
<i>Kansas.</i>				Brooklyn.....	23, 24	2.36	7.47
W. Leavenworth.....	20, 21	2.90		West Point.....			7.44
<i>Louisiana.</i>				Factoryville.....	25, 26	3.35	7.19
Monroe.....	11, 12	2.82	12.27	Auburn.....	23, 24	2.07	6.97
New Orleans.....			7.85				
Coushatta.....	6, 7	3.90	7.62				

Table of excessive and greatest monthly precipitation for July—Cont'd.

Station.	Specially heavy.		Largest monthly.	Station.	Specially heavy.		Largest monthly.
	Date.	Amt.			Date.	Amt.	
<i>New York—Con.</i>				<i>South Carolina.</i>			
White Plains.....	21 to 24	3.66	6.91	Blackville.....	7, 8	2.19	13.62
New York City.....	23, 24	2.86	6.75	Do.....	19, 20	2.66	
Setauket.....	24	2.27		Do.....	29, 30	3.70	
<i>North Carolina.</i>				Yemassee.....	23	2.23	12.03
Tarborough.....	4, 5	5.14	11.63	Do.....	29, 30	4.62	
Do.....	28 to 30	3.63		Batesburg.....	20	2.97	11.19
Raleigh a.....	7	4.90	9.10	Do.....	29, 30	2.75	
Davidson College.....	6, 7	3.05	8.38	Allendale.....	19, 20	2.47	9.42
Wake Forest.....	8, 9	2.08	8.34	Do.....	28, 29	2.49	
Do.....	19 to 23	4.96		Abbeville.....			9.12
Charlotte.....			7.46	Hampton.....			9.12
Wadesborough.....	21, 22	7.40		Saint George's.....	29, 30	3.20	8.56
Wilmington.....	3, 4	3.62	6.77	Holland's Store.....			8.48
Raleigh b.....	8	2.40	6.68	Greenwood.....			8.13
Statesville.....	6 to 8	2.95	6.54	Hardeeville.....	4, 5	3.13	7.94
Goldaborough.....	4	3.10	6.42	Do.....	29, 30	2.58	
Weldon.....	4	3.31	6.27	Cheraw.....	27, 28	2.45	7.88
Salisbury a.....			6.26	Newberry.....			7.86
Hatteras.....	4, 5	2.42	6.18	Charleston.....			7.74
Raleigh c.....	7, 8	2.17	6.11	Anderson.....	29 to 31	6.98	7.68
Salisbury b.....	7	3.00	6.03	Belfast.....			7.10
New-Berne.....	4, 5	2.55	6.01	Winnabourgh.....			6.99
Lenoir.....	19	2.80		Saint Matthew's.....	29, 30	2.68	6.84
Reidsville.....	8	2.30		Chester.....	6, 7	3.08	6.74
Marion.....	20, 21	2.84		Do.....	29, 30	2.07	
<i>Pennsylvania.</i>				Bennettsville.....			6.70
Easton.....	5, 6	3.11	11.28	Spartanburg.....	21	2.58	6.66
West Chester.....	5	3.04	11.27	Branchville.....	29, 30	2.37	6.57
Do.....	23	3.81		Florence.....			6.45
Blooming Grove.....	21	4.20	10.98	Columbia.....			6.04
Do.....	23, 24	2.60		Stateburg.....	29, 30	2.60	
Germantown.....	24	3.45	10.84	<i>Texas.</i>			
Do.....	31	4.45		Columbia.....	1, 2	6.60	8.73
Pittsburg.....	20, 21	3.85	9.51	Wiemar.....	2, 3	3.40	
Dyberry.....	21	3.00	9.28	Tyler.....	4, 5	3.50	
Do.....	24	2.13		Dallas.....	5	3.80	
Fallsington.....	22 to 24	5.04	9.28	Fort Davis.....	16	2.69	
Quakertown.....	5	3.20	9.25	<i>Vermont.</i>			
Do.....	31	2.35		Townshend.....			8.55
Wilkesbarre.....	23, 24	3.50	8.76	Jacksonville.....			7.11
Bethlehem.....	5, 6	3.80	8.58	Marlborough.....			6.38
Philadelphia.....	23	2.75	7.14	Newport.....	25	2.55	6.15
Wellsborough.....	22	2.10	7.03	Vernon.....			6.12
Do.....	25, 26	4.15	6.40	<i>Virginia.</i>			
Phillipsburg.....	28	2.51		Dule Enterprise.....			7.05
Drifton.....	31	2.50		Cape Henry.....			6.21
Reading.....			6.09	Bruington.....	5, 6	2.25	
<i>Rhode Island.</i>				Wytheville.....	23	2.62	
Block Island.....	10	3.40	7.52	<i>Wisconsin.</i>			
Providence.....			6.09	Embarras.....	3	2.00	
				Madison.....	1, 2	2.40	
				Milwaukee.....	2	2.98	

* Record for 24 days.

SLEET.

The observer at Pike's Peak, Colo., reports sleet to have fallen during the month on the following dates, 8th, 16th, 30th. No other station reported sleet.

HAIL.

Under the heading "Local storms" will be found descriptions of the more severe hail storms which have occurred during the month. In addition to these, hail was reported to have fallen in the various states and territories as follows:

Arizona.—Whipple Barracks, 4th.

Arkansas.—Lead Hill, 31st.

California.—Fort Bidwell, 28th.

Colorado.—Montrose, 2d; Pike's Peak, 4th to 6th, 8th, 17th, 18th, 31st; Colorado Springs, 21st.

Dakota.—Webster, 8th; Deadwood, 11th, 25th; Fort Meade, 21st, 31st; Huron, 23d; Fort Randall, 26th; Forts Totten and Abraham Lincoln, 29th.

Florida.—Fort Meade, 19th.

Idaho.—Fort Sherman, 25th.

Illinois.—Pekin, 1st, 4th; New Burnside, 19th.

Indiana.—Logansport, 18th.

Iowa.—Des Moines and Muscatine, 17th; Independence, 21st.

Kansas.—Ninnescah, 2d; Concordia, 2d, 21st; Leavenworth, 5th; Wellington, 10th.

Maryland.—Baltimore, 18th.

Minnesota.—Saint Paul, 8th.

Nebraska.—Genoa, 21st; Valentine, 23d.

New Mexico.—Fort Union, 5th, 24th.

North Carolina.—Charlotte, 19th.

Pennsylvania.—Erie, 3d; Quakertown, 16th, 31st; Pittsburgh, 31st.

South Carolina.—Spartanburg, 19th, 21st.

Texas.—Cleburne, 5th; Fort Davis, 16th.

Utah.—Frisco, 14th.

Vermont.—Strafford, 3d; Charlotte, 28th.

Virginia.—University of Virginia, 17th; Marion, 19th.

Wyoming.—Cheyenne, 3d, 19th, 25th; Camp Sheridan, 6th, 21st; Fort Washakie, 21st; Fort Laramie, 22d.

DROUGHT.

From the reports given under this heading it will be seen that the severe drought, which began in previous months in several of the Western States, has continued during July. This protracted drought has, in many sections, so blighted some of the staple crops that at the close of the month rains would have benefited them but little.

Concerning the drought of July, the following notes are given:

Alabama.—Mobile, 19th: the weather is very dry and dusty, and rain very much needed.

Colorado.—Denver, 15th: the heavy rain which began yesterday continues unabated to-day. The rain is general over the state, and the streams are full of water. This will end the drought in sections which have suffered, and insure bountiful crops.

Sterling, Weld Co., 15th: two heavy rain storms have visited this locality during the past week. Crops and vegetation of all kinds are doing remarkably well.

Dakota.—Fort Sully, 13th: farmers state that the extremely dry weather has done considerable injury to crops.

Parkston, Hutchinson, Co., 31st: the rain during the month in this vicinity has been unevenly distributed; while in some places the rains have been abundant, in others only a few miles distant but little rain has fallen.

Illinois.—The "Chicago Tribune" of July 16th contains reports from about forty localities in various parts of Illinois showing that drought of more or less severity was general throughout the state. On the 23d reports from generally the same places, and to the same paper, indicated that, while in some localities copious rains had fallen, practically the drought remained unbroken.

The Chicago "Morning News" of July 18th states that "the present drought is a severe blow to the farmers and stock raisers of Illinois and other portions of the dry section. They have already begun to compare it with that of the ruinous season of 1881. Until two weeks ago the prospect for a heavy corn crop was never better. But now is the critical time. The terrific heat of the sun, burning day after day from an almost cloudless sky, and the short nights that bring no dew, have nearly destroyed the farmers' hopes. In many sections the corn is dying in the fields. Every day of dry weather represents a loss of many thousands of dollars to the farmers of this and neighboring states."

Greenville, Bond Co., 21st: a heavy rain fell here this afternoon, ending, it is hoped, the dry spell which has lasted for over a month. It comes in time to help late corn, but it is feared the early crop is blighted beyond saving.

Xenia, Clay Co., 21st: after a long drought and two weeks of excessively hot weather, one of the heaviest rains of the season fell at 6 o'clock this evening. It descended in torrents, thoroughly saturating the ground. Had this rain not come until a few days later the corn would have been burned up.

Chatham, Sangamon Co., 21st: the long drought was broken, and the corn crop in this section saved, by the copious rainfall of last night. The drought has caused a scarcity of water and ruined the pastures and fruit crop in this vicinity, but it is thought the corn crop will be saved.

Centralia, Marion Co., 21st: the weather here has been oppressive for the past twenty days. Everything in the way of vegetable life is parched and practically ruined. The first rain in fifty days occurred on the afternoon of this date.

The "Chicago Times" of the 26th states that in Henry county the farmers have disposed of their stock at great sacrifice, on account of poor pasturage and scarcity of feed.

Charleston, Coles Co., 31st: July has been extremely hot and dry; the pastures in this township have entirely failed, and corn has been damaged about 75 per cent.

Mattoon, Coles Co., 31st: the drought in this locality is growing serious; vegetation of all kinds has been seriously injured.

Riley, McHenry Co., 31st: the drought still continues; the hay crop has been nearly ruined; wheat and oat crops are very light; corn is at least two weeks more advanced than usual, but is suffering for rain.

Sandwich, DeKalb Co., 31st: the month has been intensely hot and dry; meadows in many sections are completely dry, and pastures have failed.

Windsor, Shelby Co., 31st: the drought is very severe; pastures are failing; wells that never failed before are becoming dry, and cattle are suffering on account of insufficient water.

Indiana.—Huntington, Huntington Co., 29th: extremely dry and hot weather continues in this section. Many farmers report that even though rain should fall at this time the corn crop would be short. Grass is dying, and in some localities stock are suffering from want of water.

Wabash, Wabash Co., 29th: reports received to-day from the Eel River Valley district, in the northern part of this county, indicate that the corn is actually burning up from the excessively hot weather and long-continued drought. This is usually the most fertile district in the county. Eel River has not been so low in twenty-five years, and mills supplied by it are obliged to suspend operations.

Laconia, Harrison Co., 31st: but 0.62 inch of rain has fallen at this place since June 9th; the drought is considered the severest ever experienced; all crops have suffered, and some are nearly complete failures.

Terre Haute, Vigo Co., 31st: the drought has caused much injury to the growing crops in this county.

Iowa.—Independence, Buchanan Co.: the rain of the 18th was of great benefit to the crops, which were suffering from effects of drought.

Carson, Pottawattamie Co., 31st: drought continues in this section; corn is suffering seriously, and pastures have dried up.

Hamburg, Fremont Co., 22d: crops in this vicinity are suffering on account of drought.

McGregor, Clayton Co., 22d: the recent rains have greatly benefited crops in this county.

New Hampton, Chickasaw Co., 22d: on account of drought, only about one-third of the average crop of hay will be produced.

Dubuque, 25th: the drought in this section of the state is very severe; the fruit and potatoes will be a complete failure; corn has sustained some damage; in exposed places the ground is perfectly dry and the grass dead; no rain of any consequence fell in twenty-two consecutive days, during which time the temperature was unusually high.

Fort Madison, Lee Co., 31st: the month has been the driest ever known here; the pastures are drying up, and farmers had to feed their stock on hay. Crops are suffering; unless rain falls soon they will prove a failure.

Cedar Rapids, Linn Co., 31st: Cedar River is lower than known for at least ten years, and there is very little feed and water in the pastures for stock.

Oskaloosa, Mahaska Co., 31st: the month has been hot and dry and the pastures are burned brown; within the past few days the corn crop has failed rapidly, and unless rain falls soon there will be but half a crop.

Des Moines, 31st: on account of the protracted drought which has prevailed in this section, all crops have been so injured that should rain now fall they would not be benefited; wells and many small rivers have become dry.

Kansas.—Manhattan, Riley Co., 15th: crops are suffering for rain, and wells and creeks are becoming dry.

Leavenworth, 17th: the continuous hot and dry weather is very damaging to crops; the corn crop will prove a failure unless rain falls soon.

Wellington, Sunman Co.: drought prevailed from the 18th to 31st and streams and ponds became very low; on the 31st 0.40 inch of rain fell.

Independence, Montgomery Co., 30th: all vegetation is suffering from the effects of drought; corn is much injured.

Parsons, Labette Co., 30th: a drought has prevailed here since July 4th. On that day rain fell nearly all day in torrents, since which time scarcely a drop has fallen; although the ground was thoroughly soaked by the rain of the 4th and the corn well advanced, the dry weather which has prevailed since shows a damaging effect upon it; while the early planted corn is beyond injury by drought, there are thousands of acres that were planted after the wheat had been harvested which will now be so retarded in its growth as to make it worthless for anything more than heavy fodder.

Salina, Saline Co.: the month of July has been unusually hot and dry, and crops are suffering greatly in consequence.

Wakefield, Clay Co., 31st: at the close of the month drought continues; farmers are generally cutting up their corn for fodder; this crop is considered a failure in Clay county, except in a few localities. Reports from other counties in this part of the state show that the drought has been even more severe than in this county.

Topeka, 31st: the large deficiency in rainfall and the intensely hot and dry winds have seriously impaired the growth of all crops. Over large areas farmers are cutting the corn to save the fodder, the ears being shriveled; the hay had to be cut three weeks earlier than usual in order to save it.

Ninnescah, Kingman Co.: although 2.66 inches of rain has fallen at this place the month may be considered dry, as much the greater part of the total rainfall occurred on the 2d. The excessive heat during the month caused great injury to all crops in this and adjoining counties.

Elk Falls, Elk Co., 31st: the month has been very hot and dry, and the corn crop has suffered seriously in consequence; wells are failing and springs becoming dry; cattle have to be driven long distances for water.

East Norway, Doniphan Co., 31st: drought has caused much injury to the corn crop in some localities in this county, while in others the crop looks well.

Maryland.—Reports from Oakland, Garrett Co., on the 17th to "The (Baltimore) Sun," state that when rain fell a week ago it was generally supposed that the severe drought had been broken, but before the end of the week all traces of rain and moisture had passed away, and Garrett county was suffering as much from want of rain as at any time during the season. The North Branch of the Potomac is nearly dry, where it is crossed by the Baltimore and Ohio Railroad at Bloomington, in this county.

Michigan.—Battle Creek, Calhoun Co., 22d: on account on the continued dry weather corn, potatoes, and grass are suffering seriously.

Kalamazoo, Kalamazoo Co.: the hot and dry weather of July has been destructive to corn and other crops. The severe drought which prevailed in this region in 1868 is considered to have been less severe than the drought of July, 1887.

Thornville, Lapeer Co., 31st: wheat and hay are the only good crops of the season; all spring and summer crops were more or less injured by the hot and dry weather.

Swartz Creek, Green Co., 31st: the month has been very hot and dry; nearly two-thirds of the rain fell on the first four days of the month, and none fell after the 9th; pasture is very poor, and crops in general have suffered great injury.

Hudson, Lenawee Co., 31st: a protracted drought is prevailing in this locality; with one exception, no rain has fallen since the 9th, viz., 0.30 inch on the 21st; although hay, wheat, and oats gave a fair yield, corn and potatoes have suffered seriously from the drought.

Mottville, Saint Joseph Co., 31st: on account of the protracted dry weather all streams in this vicinity are very low.

Birmingham, Oakland Co.: the severest drought that has ever been known here prevailed during July; crops of corn and peas in many fields have dried up completely, and the farmers are cutting the corn stalks for feeding; notwithstanding the protracted drought in this neighborhood, excessive local rains have fallen in places from six to fifteen miles south of this station, and have caused destruction to corn and potatoes.

The "Michigan Crop Report," August 1, 1887, states:

The drought that has prevailed in the southern part of the state, with scarcely a break during the entire season, has injured corn and potatoes beyond the hope of recovery. * * * In many localities corn is being cut and either fed to stock or cured for winter fodder. In the central and southern counties the outlook for corn and potatoes is more favorable, though in these sections both crops will be far below the average.

Nebraska.—Tecumseh, Johnson Co., 31st: drought continues; the corn and potato crops will be short fully fifty per cent.

Brownville, Nemaha Co.: the month has closed with a severe drought; corn and all vegetation are dried up; the grass is dead, and the ground in places is dry to a depth of two feet. The protracted drought of the present season is more severe than any previous drought in this locality.

New York.—Amboy, Oswego Co., 4th: drought is causing injury to all crops in this county.

Palermo, Oswego Co., 4th: crops in this vicinity are suffering from the effects of drought.

Factoryville, Tioga Co.: up to the 17th all vegetation suffered from the effects of drought; during the 17th and 18th more than one inch of rain fell.

North Carolina.—Raleigh, 23d: it is reported that crops have been injured by the intense heat in the central part of the state; tobacco and cotton have sustained some injury.

Ohio.—Yellow Springs, Greene Co., 31st: the drought which prevailed in June has continued throughout July. Farmers report that corn will yield but half a crop. The pastures are dry; in some places cattle are fed as in winter.

Tiffin, Seneca Co., 31st: the drought during July was unusually severe; pastures have failed and corn in many places has dried up completely. On the 30th 0.53 inch of rain fell, but it was not sufficient to break the drought.

Tennessee.—Ashwood, Maury Co., 31st: the weather is very hot and dry; rain is much needed. In this vicinity corn will not yield more than half a crop.

Texas.—San Antonio, Bexar Co., 27th: reports from Frio county state that the water-holes are drying up rapidly and that cattle are dying of thirst.

Palestine, Anderson Co., 31st: no rain fell in this section of the state during the latter half of the month and the weather has been very hot; the cotton crop on sandy soil in this county is almost ruined. At the middle of the month the prospect for cotton was the best for years, but from the present outlook the yield will not be more than one-half of the average, and if no rain falls during the first ten days of August the crop will be a complete failure.

Virginia.—Lynch's Station, Campbell Co., 31st: both the corn and tobacco crops in this vicinity are in need of rain, and unless it comes soon these crops will be short.

West Virginia.—Middlebrook, Randolph Co., 31st: the precipitation during the month was unusually small; many of the springs are dry, and the pastures and meadow lands are very much parched from the effect of drought.

Wisconsin.—Milwaukee, 15th: the "Evening Wisconsin" of this date states that very severe drought prevails in the counties of Fond du Lac, Winnebago, Green Lake, Marquette, Dodge, and Columbia; that the vegetation over open prairies is literally burned up, and the marshes and beds of creeks are completely dry.

Embarras, Waupaca Co., 31st: on account of severe drought wells are failing and the rivers are very low.

WINDS.

The most frequent directions of the wind during July, 1887, are shown on chart ii by arrows flying with the wind. In the central and southern portions of the country to the eastward of the Rocky Mountains and in New England the prevailing winds were generally from southeast to southwest; in the extreme northwest they were from the northeast to northwest; in the Lake region, Rocky Mountain districts, and on the Pacific coast they were variable.

HIGH WINDS (in miles per hour).

Wind-velocities of fifty or more miles per hour (on mountain stations at or exceeding seventy miles), other than the maximum velocities for the month, which are given in the table of miscellaneous data:

Valentine, Nebr., 54, nw., 28th.

Mount Washington, N. H., 75, sw., 6th; 72, nw., 14th.

LOCAL STORMS.

Milwaukee, Wis.: a thunder-storm began at 1.45 and ended at 9.40 p. m. on the 2d; from 3 to 6 p. m. the rainfall amounted to 1.76 inches; considerable damage was done by the overflowing of sewers, etc., in the lower portions of the city. The electrical discharges were terrific and almost constant during the afternoon.

Baldwinsville, Onondago Co., N. Y.: a hail storm occurred at this place on the afternoon of the 2d, causing considerable damage to the tobacco crop.

Fulton, Oswego Co., N. Y.: buildings and trees were blown down by a storm which occurred at Gilbert's Mills, a few miles east of Fulton, at about 5.30 p. m. on the 2d.

Elmira, Chemung Co., N. Y.: at about 4 p. m. on the 2d a severe hail storm passed over the village of Wellsburg and vicinity, about six miles east of Elmira. The storm is reported to have been the severest ever experienced in that vicinity, and caused damage estimated at \$20,000.

Easton, Aroostook Co., Me.: during the afternoon of the 5th a very heavy rain storm occurred at this place. A wash-out occurred on the Bangor and Portland Railroad, and several small bridges were washed away. The damage is estimated at \$20,000.

Leavenworth, Kans.: During the thunder-storm on the 5th heavy hail fell from 2.06 to 2.11 p. m.; the hail-stones were of various shapes, varying in size from one-half inch to two and one-half inches in circumference.

Poughkeepsie, Dutchess Co., N. Y.: during the afternoon of the 6th a violent thunder-storm occurred in the Hudson River Valley; the heavy rainfall caused washouts on the railroads, and basements and cellars of numerous buildings were flooded.

Allentown, Lehigh Co., Pa.: an unusually severe storm occurred in the Lehigh Valley during the afternoon of the 6th; lightning and the very heavy rainfall caused much damage.

Reading, Berks Co., Pa.: the storm of the 6-7th caused a large amount of damage in this section. Numerous buildings were struck by lightning.

Saint Vincent, Minn.: at 2.55 p. m. on the 8th a gale set in, and was followed at 2.56 p. m. by a heavy rain storm; the most violent part of the storm occurred about 3 p. m., and it ended at 3.45 p. m. The course of the storm was from northwest to southeast. A considerable quantity of wheat and barley was beaten down by the heavy rain.

Cambridge, Dorchester Co., Md.: two very heavy rain storms occurred at this place and in the surrounding country on the 9th. In many places the corn fields were submerged, and numerous bridges on the public roads were washed out.

Mr. W. H. Hill, a voluntary observer at Palo Alto, Miss., reports that a violent thunder-storm occurred at that place on the afternoon of the 10th; the electrical display was remarkable; three miles southwest of Palo Alto, over a small area of two acres, about one hundred large trees were struck by lightning.

Rev. C. Foster Williams, voluntary observer at Ashwood, Maury Co., Tenn., reports as follows:

On the 12th, six miles west of station at Mount Pleasant, nine negroes were instantly killed by lightning while standing under an oak during rain, and another, who was under a tree twenty feet distant, died the next day from the effects of the shock.

Cheyenne, Wyo.: during the prevalence of a thunder-storm on the 14th, a funnel-shaped cloud was observed in the west at 5 p. m.; the cloud apparently touched the ground and at the same time incessant flashes of lightning were seen at the point of the cloud. Heavy rain and hail is reported to have occurred at Bowie, seven miles west of this place, where two hundred feet of embankment and one quarter of a mile of railroad track were washed out.

Waupaca, Waupaca Co., Wis.: about 5 p. m. on the 16th a severe storm passed over this place, causing damage estimated at several thousand dollars. The opera house was totally wrecked and a number of buildings were unroofed. Reports from Oshkosh, Winnebago Co., Wausau, Marathon Co., and DePere, Brown Co., show that the storm at those points was very severe also.

Quakertown, Bucks Co., Pa.: a thunder-storm of considerable violence prevailed from 6.45 to 8.15 p. m. on the 16th. The most violent part of the storm was of about thirty minutes' duration, during which time rain fell in torrents. The path of the storm was about half a mile wide in this locality, and it moved in a southeasterly direction.

"The (Oswego, N. Y.) Palladium" of July 20th states that a very violent wind and hail storm occurred on the 16th at Wolf Island, near Kingston, Ontario, and that much damage was done to out-buildings, fences, etc.

Des Moines, Iowa: during the thunder-storm on the 17th hail as large as pigeons' eggs fell at a point five miles south of station.

Washington City: a severe wind and thunder-storm passed over the city about 5 p. m. on the 17th. Trees were blown down in different portions of the city, and it is reported that houses were unroofed at the Washington Asylum.

Westminster, Carroll Co., Md.: the storm which passed over this county on the afternoon of the 17th was very destructive to crops, and much damage was done by lightning.

Carlisle, Cumberland Co., Pa.: one of the most violent storms ever experienced here occurred at about 3 p. m. on the 17th. It was accompanied by thunder, lightning and hail. The roof and chimneys of the Indian school were blown off; many trees were uprooted.

Buffalo, N. Y.: during a severe squall on the afternoon of the 17th the steamer "Periwinkle" was torn from her moorings, and trees were blown down throughout the city.

Jersey City, N. J.: the storm of the 17th caused considerable damage at this place; a large number of trees and fences were blown down, and a portion of a bridge over the Newark and New York Railroad tracks was demolished.

New York City: on the 17th quite a severe storm occurred between 11.50 a. m. and 1.15 p. m.; considerable damage was done in the upper portion of the city and in that part bordering on the lower bay. The Signal Service observer states that the formation of this storm resembled that of a tornado, the cloud being funnel-shaped, and that its force and form were broken during its passage over the larger buildings of the city. During the night of the 17-18th a storm caused considerable damage to small boats on Long Island Sound, and crops for miles along the beach were seriously injured.

Baltimore, Md., 18th: shortly after 5 p. m. a violent thunder-storm, accompanied by hail and high northwest wind, passed over the city; the wind reaching a velocity of thirty-nine miles per hour at 5.25 p. m.; much damage was done in all sections of the city; many houses were unroofed, trees uprooted, and several buildings were struck by lightning; the hail-stones varied in size from a quarter to half an inch in

diameter, and broke many windows. The storm moved from northwest to southeast.

Wabash, Wabash Co., Ind.: during the night of the 18-19th a severe hail storm passed through the northwestern part of this county, doing an immense amount of damage. The storm came from the west through Miami county and crossed the Lake Erie and Western Railway between Denver and Peru; its path through Wabash county was from two to three miles wide. The hail-stones were unusually large, and fell in large quantities. Apples, melons, grapes, and all small fruits and vegetables were cut to pieces. The damage is estimated at \$50,000.

Wheeling, W. Va.: a violent storm occurred during the night of the 18-19th, blowing down fences and trees; for about one hour the lightning was almost continuous.

Norfolk, Va.: the steamer "H. D. Miller" reports having encountered a severe hail, rain, and wind storm at about 7 p. m. on the 19th during her passage from Baltimore to Norfolk, and when off North Point, in the Chesapeake Bay; hail fell for half an hour, covering the deck of the steamer.

Kitty Hawk, N. C.: on the 19th a thunder-storm from the northeast began at 7.40 a. m. and continued until 11.45 a. m.; an electrical discharge at 9.40 melted the wires, burned insulation and set fire to a curtain and window casing in the telegraph office.

Abilene, Dickinson Co., Kans.: a storm on the 20th caused much damage to buildings, trees, etc., in this vicinity; a number of barns were wrecked.

Parkersburg, Wood Co., W. Va.: during the evening of the 20th a destructive storm passed through Wirt and Wood counties in this state. Dwellings and out-buildings were demolished and many fine orchards and valuable tracts of timber were completely ruined. At Rockport, Wood Co., a large stone mill was demolished.

Pittsburg, Pa.: the heavy rain storm of the evening of the 20th flooded many cellars in this city and in Alleghany City, causing much damage. Reports from the surrounding country show that the storm was very severe.

Brownsville, Saline Co., Mo.: a severe wind and hail storm occurred about eight miles east of this place at about 7.30 p. m. on the 20th. The hail-stones were very large, and many remained on the ground until the morning of the 21st. The width of the storm was about two miles, and within its path great damage was done to crops.

Elkton, Cecil Co., Md.: the storm of the 21st is considered to have been one of the most severe that has occurred here in many years. The very heavy rainfall caused a large amount of damage to roads and bridges in this county.

Corry, Erie Co., Pa.: during the prevalence of a wind storm which occurred near this place on the 22d, a barn was blown down, fences were prostrated, and several orchards damaged; the course of the storm was from southwest to northeast, and its track was from eight to ten rods wide.

Mount Holly, Burlington Co., N. J.: a violent thunder-storm occurred in this part of Burlington county during the night of the 22-23d; about one dozen houses were struck by lightning in and near Mount Holly. The heavy rainfall overflowed cellars and caused washouts along the railroad.

Huron, Dak.: heavy rain, with moderate thunder and lightning, and occasional showers of small hail, prevailed from 4.30 to 6.45 p. m. on the 23d. About one mile east of this place a severe storm destroyed several barns and caused much injury to crops; hail fell over a small area about half a mile long and quarter of a mile wide.

Baltimore, Md.: a thunder-storm prevailed from 4.25 to 5.50 p. m. on the 23d; the heavy rainfall flooded streets and cellars and caused a rapid rise in Jones' Falls, the water rising within a few inches of the bridge. A mud machine and several scows at work at the Falls were driven against the Lombard street bridge, but the damage was slight. The storm moved from northwest to southeast. During the night of the 26-27th another severe thunder-storm, with heavy rain, passed over this

city from northeast to southwest; 1.55 inches of rain fell between 7.40 and 10.45 p. m.; considerable damage was done by flooding of streets and cellars.

Elizabeth, Union Co., N. J.: the very heavy rain which accompanied the storm on the afternoon of the 23d inundated many streets and entered numerous dwellings, compelling the occupants to leave the lower stories. The river at this place rose rapidly.

Philadelphia, Pa.: a thunder-storm of unusual severity began at 3.23 a. m. on the 23d; 2.25 inches of rain fell in one hour; much damage was done in the city to sewers, piers, cellars, etc. The storm came from the southwest and passed northeastward. During the afternoon and evening of the 26th heavy rain occurred at intervals in the north and northwestern portions of the city. At Manayunk, and at Falls of the Schuylkill, there was a very heavy rain storm which caused much damage to property.

Fort Maginnis, Mont.: a severe hail storm, with thunder and lightning, began at 6.15 and ended at 6.30 p. m. on the 24th; hail-stones from two to two and a half inches in diameter fell to a depth of five or six inches and broke all glass in windows with northern exposure; the hail-stones fell with sufficient force to break shingles, crack window-blinds, and kill poultry, lambs, and calves; the storm is reported to have been the most violent ever experienced in this vicinity.

Huron, Dak.: light rain fell during the night of the 24-25th; during the following day the wind blew a gale from the southeast, increasing at night, and attaining at 10.30 p. m. a velocity of sixty-six miles an hour; the storm was attended at intervals during the evening by a light rain, vivid lightning, and heavy thunder. This storm was the severest that has occurred here since March, 20, 1882. Considerable damage was done to the growing crops by the wind, and some damage was done by lightning.

Hay Springs, Sheridan Co., Nebr.: a hail storm occurred about six miles southeast of this place on the 25th; its direction was from southwest to northeast and its path was about one mile wide; crops were injured to some extent.

Parkston, Hutchinson Co., Dak.: the storm during the night of the 26-27th was very severe at this place and in the surrounding country. At a point ten miles north of Parkston several buildings were blown down.

Fargo, Cass Co., Dak.: the storm on the night of the 26-27th was one of the most violent ever known here. Much damage was done to buildings, fences, etc. It is reported that the wind reached a velocity of eighty miles per hour.

Yankton, Dak.: during the night of the 26-27th a storm of great severity occurred at this place, blowing down trees, and causing slight damage to some buildings. The wind reached a velocity of fifty-four miles per hour.

Fort Worth, Tarrant Co., Tex., 27th: reports from Anson, Jones Co., state that a violent storm on the 26th caused damage to buildings, etc., in that vicinity to the extent of \$40,000. At Haskell, Haskell Co., nearly all the building in the town were demolished.

Pensacola, Fla.: during the storm on the 27th no damage was done in this city, but to the eastward the storm was more severe and resulted in considerable damage. At De Funiak, Walton Co., several houses were unroofed, and trees blown across the railway track; one fishing smack was wrecked.

Oskaloosa, Mahaska Co., Iowa: the thunder-storm on the 28th caused much damage to life and property in the surrounding country.

Franklin Falls, Merrimac Co., N. H.: a severe thunder-storm occurred during the night of the 28-29th, causing a large amount of damage to crops and washing out highways.

Omaha, Nebr.: reports from David City, Butler Co., state that a number of buildings were demolished by a storm which occurred at 6 p. m. on the 29th. Among the buildings destroyed were the depots of the Union Pacific and Burlington and Missouri railroads.

Mason City, Cerro Gordo Co., Iowa: at about 5 p. m. on the

29th, a severe storm occurred at this place; several buildings were unroofed and some were blown down.

Boston, Mass.: unusually severe thunder-storms occurred in eastern Massachusetts and in portions of New Hampshire dur-

Report of tornadoes for the month of July, 1887, by 2d Lieutenant John P. Finley, Signal Corps, Assistant.

Place.	Date.	Time.	Direction.	Form of cloud.	Number of persons killed.	Number of persons wounded.	Width of path in feet.	Number and kind of animals killed.	Number and kind of buildings destroyed.	Total valuation of property destroyed.	Authority.
Cleburne, Tex. <i>a</i>	5	3.30 p. m.	nw.		None	2	2,640		1 house destroyed and several damaged.		Dr. T. C. Osborne, Cleburne, Tex.
Weston, Wis.	6	5 p. m.	ne.	Funnel			800 to 4,000	Some cattle	Swept acres of timber away.		R. R. Wilkinson, Weston, Wis.
Near New Riegel, Ohio <i>b</i>	8	1.30 p. m.		Bunch shape.	None	None			Orchards, shade trees, and crops prostrated.		C. H. Klein, New Riegel, Ohio.
Cambridge, Mich. <i>c</i>	9	2.30 p. m.	nw.		None	None			Totally destroyed 3 buildings, overturned barns, and prostrated trees.		C. H. Dowey, Cambridge, Mich.
Goddard, Dak. <i>d</i>	10	4 p. m.	ne.	Funnel					Great destruction to crops.		J. F. Hahnén, Goddard, Dak.
Fairbank, Dak. <i>e</i>	10	4 p. m.	se.	Funnel					Considerable damage to buildings and crops.		C. D. Thompson, Fairbank, Dak.
Lewiston, Dak. <i>f</i>	10	3.30 p. m.	se.	Funnel					Very destructive to crops.		P. W. Pearson, Lewiston, Dak.
Shiloh, Dak.	10	6 p. m.	se.						Small buildings torn to pieces.		T. Wright, Shiloh, Dak.
Stockton, Ill.	13	Evening	ne.	Funnel					1 large and several smaller buildings destroyed.		Saint Louis "Globe Democrat."
Valparaiso, Nebr. <i>g</i>	14	Afternoon	ne.	Funnel			200 to 320		Houses and out-buildings torn to pieces, crops ruined.		E. J. Brethourder, Holland, Nebr.
Easton, Pa. <i>h</i>	16	6 to 7 p. m.							Very destructive	\$50,000	"Commercial Gazette," Pittsburg, Pa.
Moorestown, N. J. <i>i</i>	16	7.45 p. m.	easterly	Funnel			Narrow		Destructive to crops and timber.		T. J. Beans, Moorestown, N. J.
Loyal, Wis. <i>j</i>	16	2 p. m.	ne.				3,200		Very destructive to timber through which it passed.		W. Welch, Loyal, Wis.
Waupaca, Wis. <i>k</i>	16	5 p. m.	ne.		None	None		Several head of cattle.	Destroyed opera-house and did considerable damage to dwelling houses.		G. M. Chamberlin, Waupaca, Milwaukee "Sentinel," Wis.
New York City <i>l</i>	17	Noon	easterly						Houses unroofed, trees blown down, and considerable damage done to shipping.		New York "World" and "Tribune," July 18, 1887.
New York City	17	11 p. m.	e.	Cone shape.					Struck a steamboat, tore off her smoke-stack, and sent her round like a top.		New York "Tribune," July 18, 1887.
Carlisle, Pa.	17	3 p. m.							Trees uprooted, buildings unroofed, and thousands of window panes shattered by hail.		Baltimore "Sun," July 18, 1887.
Westminster, Md. <i>m</i>	17	4 p. m.	se.	Funnel	None	None	Narrow		Very destructive		Baltimore "American" and "Sun."
Baltimore, Md. <i>n</i>	17	3 to 4 p. m.			1	Several			do		Dr. J. F. Llewellyn, Mexico, Mo.; J. T. De Sellum, Gaithersburg, Md.; Baltimore "Sun."
Rushville, N. Y.	17	6 p. m.	e.		None	None	2,640		Several barns and out-buildings destroyed; hardly a tree or fence in its path escaped.		Dr. M. A. Veeder, Lyons, N. Y.
Near Emporia Junction, Kans. <i>o</i>	19	4 p. m.	ne.	Funnel							Signal Service observer, Topeka, Kans.
Topeka, Kans. <i>p</i>	21	8.35 to 8.45 p. m.	e.	Funnel	None	None					Do.
One mile south of Liberty Centre, Ohio.	21	Evening	ne.				3,200		Damage confined to timber and crops in path.		Dr. T. C. Hunter, Napoleon, Ohio.
Hearne, Tex. <i>q</i>	22	4.30 p. m.							Several residences blown down, buildings unroofed, trees and fences prostrated.	5,000	R. N. Cone, Cone, Tex.
Wytheville, Va. <i>r</i>	23	8.45 p. m.									Howard Shriver, Wytheville, Va.
Watkinsville, Ga. <i>s</i>	24	6 p. m.	ne.	Funnel	None	None					Athens, Ga., "Constitution."
Moland Township, Minn. <i>t</i>	25	11 p. m.	easterly	Funnel	None	Several	A few rods		Several farm houses and granaries destroyed, trees prostrated, &c.	200,000	C. S. Taylor, Glyndon, Signal Service observer and "Evening News," Moorhead, Minn.; G. A. Grover, Horace, Dak.
David City, Nebr. <i>u</i>	29	6 p. m.	ne.	Funnel	1		2,640 to 5,280	Several horses and head of cattle.	Destroyed a large number of buildings.		F. E. Wilson, David City, E. Whitcomb, Friend, Nebr., and "Butler County Press."
Waterloo, S. C. <i>v</i>	29	9.30 a. m.		Funnel	1		150		Destructive to everything in its path, which was well defined.		J. B. Anderson, Waterloo, S. C.

a Two clouds, one from the east and one from the west, met and fell towards the earth like a mass of solid matter, and in an instant the city was embraced by a twisting wind. *b* A bunch-shaped cloud moved below the main cloud with a continued roar, the cloud having a rotary motion. *c* The wind appeared to be more severe over head, but would strike the earth every now and then, causing great destruction. *d* Cloud very dark, with a greenish tinge, but was rather too high to do much damage; it was accompanied by an intense, rumbling noise. *e* There seemed to be three strata of clouds, all going in different directions, the funnel-shaped cloud being between the others and trying to force its way through the lower one. *f* There was one funnel-shaped cloud with the wide end down; it was some distance ahead of the main storm and was accompanied by a roaring noise. *g* The funnel cloud was white as snow and seemed to move in bounds; it would touch the earth for some sixty rods and then draw up to touch again further on. *h* The cloud came down the Delaware Valley, reaching nearly to the ground; it was struck by a cross wind and then began its work of destruction. *i* A funnel-shaped cloud formed at the western extremity of an arch of clouds. *j* The cloud was attended by a heavy roar. *k* Two clouds united, which gave a rotary motion to the wind. *l* A big, black cloud, with white, torn edges, turning over and over like a windmill, came suddenly with the speed of a race horse. *m* The cloud came suddenly in the shape of a funnel, carrying fences and all movable objects with it. *n* In the western section of the city the cloud was lower, touching the tops of trees and houses. *o* From a distance it had the appearance of a tall column, reaching from the ground to the clouds. *p* The cloud did not reach the earth; it had the appearance of an old fashioned, high hat inverted and extended one-eighth of the distance from the main cloud to the earth. *q* Two dense and angry looking clouds were observed approaching from opposite directions, and on their uniting a terrific wind occurred. *r* Cloud did not touch the earth. *s* A cloud of inky blackness approached at a terrific rate, accompanied by a frightful roar. *t* The wind at the ground was quite violent, being sufficient to cause considerable damage to trees and out-buildings, but the tornado cloud did not touch the ground. *u* Two clouds, one from the southwest and one from the northwest, met, when a great commotion immediately ensued, resulting in the formation of three "twisters." As the storm progressed the tornado cloud resembled a tall steeple, moving at a rapid rate. *v* A large, black, twisting, and boiling mass of clouds, somewhat funnel-shaped, with a whitish mist or vapor preceding it, accompanied by a roar.

ing the afternoon of the 29th. The sloop "Gris" was driven ashore on Corinthian Point in Boston Harbor during a squall on the above date.

Pittsburg, Pa.: light rain prevailed from 1.20 to 3 p. m. on the 30th; at 4.40 p. m. a severe thunder-storm set in from the southwest and continued till 6.15 p. m.; heavy rain, with hail, occurred from 5.10 to 5.30 p. m., the rainfall amounting to 1 inch, most of which fell in twenty minutes; the wind reached a velocity of thirty-six miles an hour from the northwest; the damage done to various kinds of property is estimated at \$70,000.

Hartford, Conn.: a severe hail storm on the afternoon of the 31st caused great damage to corn, tobacco, and other crops in South Glastonbury and neighboring localities. Large trees were blown down and the roads were badly washed.

New London, Conn.: "The Day" of August 1st states the storm of July 31st was among the severest that has been

experienced at New London in many years, and caused damage throughout the city and in other portions of the state; numerous objects were struck by lightning. At Hartford the storm was accompanied by hail which caused much damage to crops in that vicinity.

New Haven, Conn.: during the thunder-storm which began at 2.50 and ended at 4.30 p. m. of the 31st, several buildings and trees were struck by lightning.

WATER-SPOUTS.

Capt. J. Meikle, of the bark "Ashantee," reports having observed a large water-spout July 9th, at 8 a. m., in N. 38° 40', W. 68° 31', during the prevalence of a heavy thunder-storm, with hard sw. squalls and heavy rain from 2 a. m. till noon.

Capt. G. Steuger, of the s. s. "Leerdam," reports: "June 21st, 4.15 p. m., in N. 41° 02', W. 60° 23', observed large water-spouts which moved from sw. to ne."

COTTON REGION REPORTS.

In the following table are given the means of the maximum and minimum temperatures, and the average rainfall for the cotton-belt districts during the month. For the purpose of comparison the means for the five preceding years are also given.

The rainfall for the districts of Galveston and Little Rock differs but slightly from the average; that for the district of Memphis is 1.06 below the average, while in the other districts the rainfall is excessive. The excess for the districts of Augusta, Atlanta, Montgomery, and Savannah is very large, that for Augusta amounting to 7.54 inches. In the last-named district reports from twelve stations give an average of 11.49 inches, which is nearly three times as great as the normal precipitation as determined from the cotton-region observations of the last five years; the average for the Atlanta district (reports from thirteen stations) is more than double the normal, while the excess for the Montgomery district is nearly as great.

The means of the maximum and minimum temperatures in all districts are generally normal or slightly above.

Temperature and rainfall data for the cotton districts, July.

Districts.	Rainfall.			Temperature.								Extremes for July, 1887.	
	Average for July of five preceding years.	Average for July, 1887.	Departures.	Maximum.			Minimum.						
				Mean for July of five preceding years.	Mean for July, 1887.	Departures.	Mean for July of five preceding years.	Mean for July, 1887.	Departures.				
Inch.	Inch.	Inch.	°	°	°	°	°	°	°	°	Max.	Min.	
New Orleans.....	4.26	5.03	+ 0.77	92.9	92.4	- 0.5	73.1	71.7	- 1.4	103	61		
Savannah.....	5.74	8.65	+ 2.91	92.3	93.0	+ 0.7	72.0	72.7	+ 0.7	105	56		
Charleston.....	6.36	6.99	+ 0.63	91.8	92.3	+ 0.5	70.5	72.4	+ 1.9	102	53		
Atlanta.....	4.01	9.77	+ 5.76	90.2	90.3	+ 0.1	68.7	71.1	+ 2.4	106	58		
Wilmington.....	3.37	6.35	+ 2.98	90.7	92.5	+ 1.8	68.9	71.7	+ 2.8	111	56		
Memphis.....	2.88	2.82	- 0.06	90.3	92.5	+ 2.2	68.5	70.1	+ 1.6	106	49		
Galveston.....	2.09	2.07	- 0.02	95.3	95.8	+ 0.5	72.7	74.0	+ 1.3	105	61		
Vicksburg.....	5.10	5.47	+ 0.37	92.0	92.7	+ 0.7	71.4	72.5	+ 1.1	102	55		
Montgomery.....	4.34	8.47	+ 4.13	91.7	92.2	+ 0.5	69.6	71.9	+ 2.3	101	53		
Augusta.....	3.95	11.49	+ 7.54	92.4	92.5	+ 0.1	70.1	71.8	+ 1.7	110	63		
Little Rock.....	2.59	2.38	- 0.21	92.8	93.2	+ 0.4	68.1	68.5	+ 0.4	105	56		
Mobile.....	3.78	5.39	+ 1.61	93.5	93.3	- 0.2	70.4	70.0	- 0.4	105	58		

INLAND NAVIGATION.

FLOODS.

Raleigh, N. C.: during a heavy thunder-storm on the 7th 4.90 inches of rain fell from 10 to 11.30 p. m. Reports from the surrounding neighborhood show that this phenomenal rainfall was not general; at the signal office, only two miles distant, the rainfall measured but 1.79 inches. Portions of the dam of the water-works were washed out, and the crops lying in the storm's area were somewhat damaged.

Nogales, Pima Co., Ariz.: on the afternoon of the 7th a remarkably heavy rain storm occurred. Streets were flooded and dams and bridges washed away. Washouts occurred on the Sonora Railroad, causing delay of trains. On the afternoon of the 13th another heavy rain storm occurred. It is reported that on the mountains to the southwest of Sonora there was a "cloud burst," which in a short time flooded a portion of Sonora, washing away a number of houses.

Fort Apache, Ariz.: during the prevalence of a thunder-storm from 5.20 to 8.10 p. m. on the 8th, a "cloud burst" occurred on the east fork of the White River, in the mountains east of station. A volume of water three feet deep came down the canyon, carrying on its crest large trees, etc.; the water subsided in about two hours.

The "Salt Lake Herald" of the 13th states:

FILLMORE, UTAH, July 11.—Last evening a flood again devastated Fillmore and the surrounding country. The greatest damage was done in the mountains east of this place. Three saw-mills, with logs and lumber aggregating thousands of feet, were swept entirely away. Half of a large herd of sheep

was lost, the herders narrowly escaping with their lives. The damage done will materially affect the whole community.

The Saint Louis "Globe-Democrat" of the 15th contained the following:

DENVER, COLO., July 14.—A terrific cloud-burst occurred in Tucker Canyon, near Golden, twenty miles from Denver, this afternoon. The canyon was full of campers, ore-haulers, etc. A slight rain storm succeeded peals of thunder, and suddenly a wave nearly twenty feet high swept down the narrow canyon, which for weeks had been completely dry. Everything was swept before it. The sides of the gulch, which is only sixty feet wide, were swept away, as were also the trail and carriageway for miles up the canyon. Those who were caught out, so far as is known, left their teams and fled to the mountains. All the latter part of the afternoon people have been walking into Golden from the hills. They report the loss of their teams and vehicles, and all give exciting accounts of their narrow escapes from death. They fear that many lives have been lost, as many people who went up into the mountains have not yet been heard from.

The huge wave in the canyon was the result of a cloud-burst, which may have occurred far up in the canyon. The loss to ranchmen in the valley has been heavy.

The Cheyenne, Wyo., "Daily Leader" of the 16th contained the following:

ALBUQUERQUE, N. MEX., July 16.—A special to the "Democrat" from Benson, Ariz., says the heavy rains of the past few days have caused serious washouts on the New Mexico and Arizona and Sonora railroads, and it will be three or four weeks before trains can go through to Nogales. Water has run down from the mountains in large volumes, drowning considerable stock in the valleys.

San Francisco, Cal.: the first mails from the East since the 16th arrived during the night of the 18th, the delay having